AGRICULTURAL SCIENCE AND TECHNOLOGY

EDUCATIONAL SPACES

Printing Instructions

1. Print the Table of Contents section to obtain an overview of the total document.
2. Print each document section that you are interested in.
3. For a *complete* document, please *print all* sections.

AGRICULTURAL SCIENCE AND TECHNOLOGY

GENERAL PROGRAM GOALS AND OBJECTIVE STATEMENT

- ☐ Develop competencies and the basic background knowledge to become successful in food, fiber and natural resources occupations.
- ☐ Develop entrepreneurial, business and management skills needed by students preparing to enter occupations in the food, fiber and natural resources system.
- ☐ Develop an understanding of agriculture's relationship to the environment and our natural resources.
- ☐ Develop the student's ability to think critically, solve problems and function effectively in a competitive global society.
- ☐ Develop an understanding of career opportunities and the preparation needed to select, enter and advance in a food, fiber and natural resources occupation.
- ☐ Develop career objectives, job-seeking, employability, and job-retention skills including cooperative team member attitudes.
- ☐ Develop the ability to advance in an occupation through a program of continuing education and life-long learning.
- ☐ Develop communication skills and abilities which are essential in any occupation.
- ☐ Develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social and civic responsibilities.

PROGRAM ACTIVITIES

- ☐ Computing/graphing
- ☐ Experimenting
- ☐ Welding
- ☐ Construction/Carpentry/Fabrication
- ☐ Fabrication
- ☐ Small Engine Repair
- ☐ Grading Meat
- ☐ Plant Propagation
- ☐ Transplanting Plants
- ☐ Growing Plants
- ☐ Youth Activities
- ☐ Lectures
- ☐ Livestock lab
- ☐ Aquaculture
- ☐ Evaluation/Grading/Judging
- ☐ Distance Learning
- ☐ Field Activities
- ☐ Storing/cataloging/organizing
- ☐ Telecommunications

AREAS

DESCRIPTION	EST. STAFF	EST. STUDENTS	SQ. FT. TOTAL
Ag Lab	1-2	15-30	1200-1500
Ag Shop	1-2	15-30	5500
Storage/ Woods and Metals	1-2	2-3	250
Storage (tools)	1-2	2-4	50
Greenhouse	1-2	15-30	1500
Head House/Storage	1-2	3-5	300-500
Computer Lab	1-2	15-30	900-1100
Office	1-2	2-3	150
Storage Outside (secured)	1-2	6-8	900
Restrooms/showers			250

INTERNAL/EXTERNAL RELATIONSHIPS - WHAT SHOULD BE NEAR THIS AREA

- ☐ The ag shop should be near their storage area.
- ☐ The ag lab should be near the science area.
- ☐ The offices should be close to the labs.
- ☐ The greenhouse should be near the ag classrooms and oriented for maximum sunlight.
- ☐ The ag shop needs to be near outside sites such as vehicle parking, vehicle access and storage areas.

INTERNAL/EXTERNAL RELATIONSHIPS - WHAT SHOULD **NOT** BE NEAR THIS AREA

- ☐ The ag area should be away from core classes and media center.
- ☐ The greenhouse should be located away from circulation and away from bright outside lighting.

UTILITIES

Plumbing:

- ☐ An eye wash and shower area is needed in the lab.
- ☐ Floor drains should be located in the ag shop.
- ☐ Deep sinks need to be in the shop, classrooms, labs and head house.
- ☐ High gooseneck faucets are needed on all sinks.
- ☐ Water is needed in the greenhouse.
- ☐ A hydrant and pressure wash are needed in the shop area and outside.
- ☐ Plumbing is needed for a water heater in the ag area.
- ☐ A drinking fountain should be installed near the classroom area.
- ☐ Natural gas may need to be provided in the labs and classrooms.
- ☐ Plumbing should be positioned or dampened to minimize noise.

HVAC

- ☐ Hoods are needed in the lab area.
- ☐ Extra ventilation in the welding area is needed.
- ☐ An exhaust system in engine repair area is needed.
- ☐ Dust collection and particulate filtration should be installed near the carpentry area.
- ☐ Compressed air outlets in the shop area are needed.

- ☐ The heating, ventilation, and air-conditioning system needs to be of sufficient size to keep each instructional space at a comfortable temperature.
- ☐ The system needs a fresh air exchange system to keep high air quality in each instructional space.
- ☐ The general classroom supply and exhaust ducts need to be positioned to minimize any draftiness in the room.
- ☐ The HVAC controls need to be designed to allow individuals the ability to modify the classroom temperature for the instructional requirements of the classroom activities.
- ☐ The controls need to be positioned so that the room temperature is not "misread" (e.g., not too close to a door, window, or vent).
- ☐ The HVAC system should be energy efficient.

Electrical:

- ☐ Three-phase power is needed in the shop area.
- ☐ Power through ceiling to wall is preferred.
- ☐ Floor electrical outlets are needed in the computer lab.
- ☐ Exterior outlets of 110 and 220 volts are needed.
- ☐ Special outlets may be needed in the painting area.
- ☐ Outlets should be located in the storage room.
- ☐ Special electrical will be needed in the greenhouse.
- ☐ Oversized electrical capabilities should be included for future expansion.
- ☐ Electrical supply outlets need to be sufficient to meet the electrical equipment needs of the modern classroom.

- ☐ Each classroom should have occupancy sensors installed for lights.
- ☐ Electrical supply outlets need to be provided for any built-in audio-visual equipment installed in the classroom (television, VCR, electric-ceiling screen, etc.) Controls for the screen should be beside light switches.

Lighting:

- ☐ Sodium lighting is needed in the greenhouse.
- ☐ Task lighting is needed in all appropriate learning areas, especially in welding.
- ☐ Each classroom should have occupancy sensors installed for lights.
- ☐ Bi-level lighting will accommodate an instructor's need to vary the light intensity for different instructional tasks.
- ☐ The light fixtures need to be energy efficient T-8s with an electronic ballast to keep operating costs at a minimum. The lamps should have a CRI of .85.

Technology:

- ☐ Telephone and data drops are needed in the office, classrooms, labs and greenhouse.
- ☐ Video drops are needed in the lab, classroom and computer area.
- ☐ Each classroom needs to have access to cable TV for commercial, satellite and closed circuit broadcasts over the cable. Special consideration should be taken for compressed video in each instructional space.
- ☐ The telephone system should be programmed to enable outgoing calls directly from the classroom. All incoming calls should go through the main

office switchboard.

- ☐ Each classroom should be equipped with an integrated clock, intercom, and bell system.
- ☐ Each classroom should be equipped with a TV, VCR, electric-screen and overhead and LCD projector.
- ☐ The area should be wired with data cable to enable the connection of a local area network and a wide area network.

SURFACES

Floors:

- ☐ Anti static carpet in the computer lab should be considered.
- ☐ Vinyl should be considered in the classroom.
- ☐ Sealed concrete should be installed in all other areas.
- ☐ The shower area needs a non-skid surface.
- ☐ Consider a sloped floor with a level area provided in the work area, if possible.
- ☐ A sloped floor in the greenhouse should be considered.

Walls:

- ☐ The shop area should be bright in color with a smooth surface for easy cleanup.
- ☐ Walls should be of durable concrete or metal and masonry.
- ☐ Noise insulation should be considered.
- ☐ Windows are needed between the office, lab and classrooms.
- ☐ A 4'x16' white board with friction clips needs to be provided.

- ☐ A tackable wall should be provided in the classroom and lab area.
- ☐ Wall and ceiling surface materials need to accommodate the acoustical needs of the classroom.
- ☐ If possible, there should not be windows in the shop area.
- ☐ Windows, if applicable, need to be of double pane glass and have operable integral blinds where practical.

Ceilings:

- ☐ The ceiling height of the classroom should be 9' - 11'.
- ☐ The classroom and office ceiling should be a durable, suspended ceiling with acoustical tile.
- ☐ The ceiling in the shop area should be 14' to 20' in height.
- ☐ An acoustical metal deck in the shop area is needed.

Doors:

- ☐ A 24' overhead door is needed in the shop area and a 12' -15' door in the head house. A remote control door opener should be considered.
- ☐ A double entrance door is needed in the greenhouse.
- ☐ A Dutch (split) door is needed in the storage room.
- ☐ Each passage door should have a small narrow window.

STORAGE

- ☐ Specialized chemical storage with an earthquake lip on shelving is necessary.

- ☐ Covered, outside, secured storage should be provided.
- ☐ Separate secured storage is needed for gas cylinders.
- ☐ The head house will need storage bins.
- ☐ Each general classroom needs to have at least 24' of base cabinets for storage.
- ☐ The base cabinets should have counter tops with knee spaces underneath to act as desks for computer stations.
- ☐ Each general classroom needs to have overhead wall cabinets above the base cabinets.
- ☐ Each general classroom needs to have sufficient storage for those specialized books, magazines, and other instructional materials necessary for successful instruction.
- ☐ Each general classroom needs to have some of the storage cabinets be secured specifically for the personal effects of the instructors.
- ☐ Space is needed for two (2) four-drawer, letter-size file cabinets.
- ☐ Adjustable shelves are needed in storage rooms and cabinets, if possible.

FURNITURE AND EQUIPMENT

- ☐ Some specialized furniture will be needed for the greenhouse.
- ☐ Chemical resistant tops on tables in the lab need to be considered.
- ☐ Work benches are needed in the shop area.
- ☐ An overhead winch or load hauling equipment should be considered.
- ☐ Welding booths are needed.
- ☐ A cooler for the horticulture area and the lab could be shared.

- ☐ Lockers are needed in the shop area.
- ☐ Worktables 42 inches high are needed in the horticulture area.
- ☐ Adjustable shelving in all storage areas.
- ☐ Each general classroom needs to be equipped with sufficient desks, tables, and adjustable chairs to meet the needs of the instructional program.

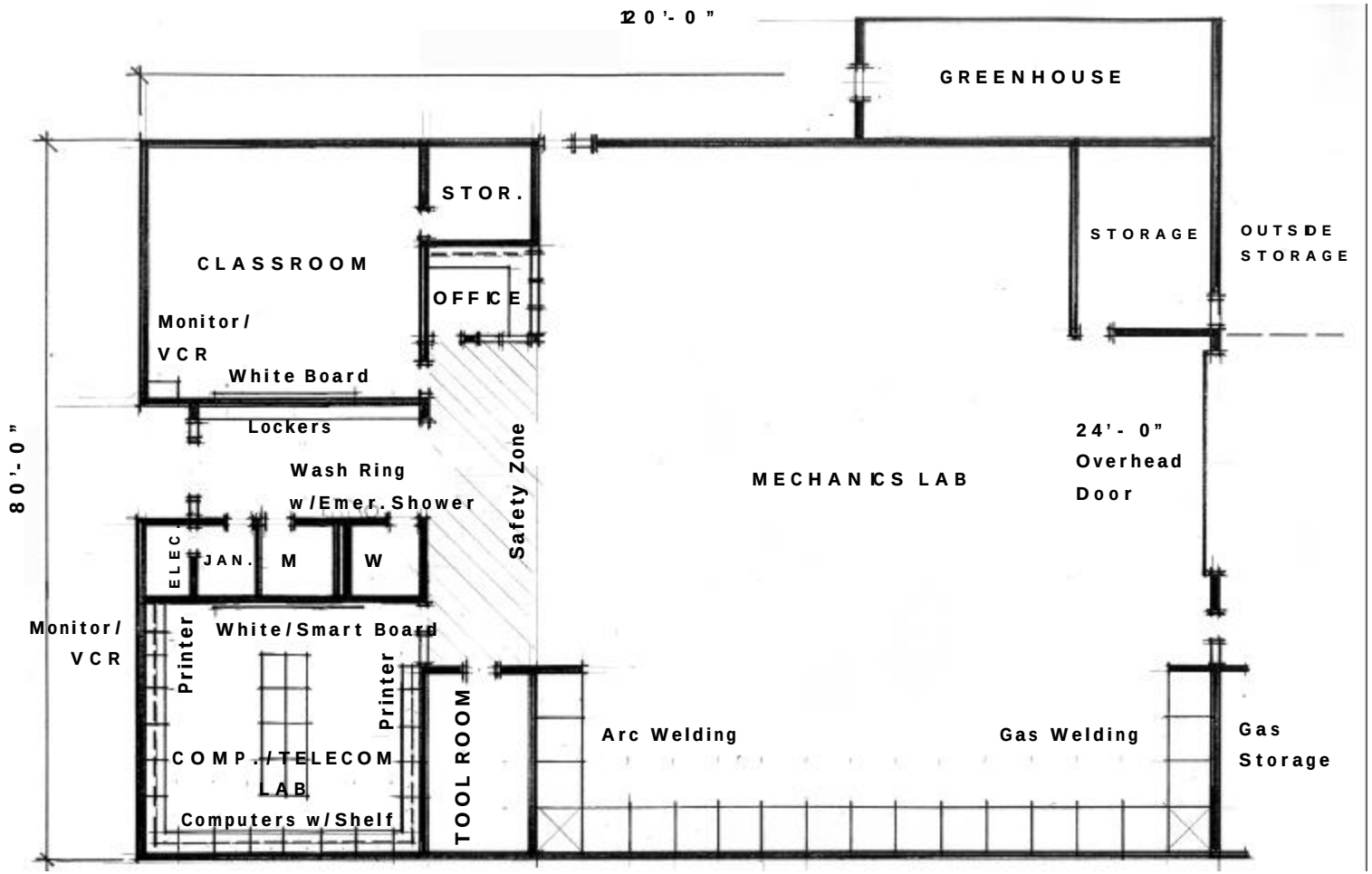
SAFETY ISSUES

- ☐ Secured fencing is needed around the greenhouse and storage (bull pen) areas.
- ☐ Exterior lighting is needed but should not be near the greenhouse.
- ☐ Bollards by doors and corners of the shop area should be installed.
- ☐ All furniture should be ergonomically correct.

IMPORTANT NOTE

The following graphics are intended to show typical spaces and spacial relationships. They are not intended to serve as architectural drawings and are not adapted to specific sites.

These graphics should be used as a starting place for discussions with district personnel, planners, architects and engineers. Almost certainly, changes and adaptations will be required to meet the particular needs of the educational institution and the programs they offer.



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The Matrix Group Not to Scale